

Application No. 09/749,059

Please substitute the following amended paragraph for the pending paragraph beginning on page 4, line 1:

Most high-speed blending tools of the prior art do not have raised vertical elements such as surfaces 19A and 19B (collectively "surface 19") shown in Figure 2. Instead, a typical blending tool has a collision surface formed simply by the leading edge of its central shank 20. In many tools, the leading edge is rounded or arcuately shaped in order to avoid a "snow plow" effect wherein particles become caked upon a flat leading face much as snow is compressed and forms piles in front of a snow plow. The tool shown in Figure 2 attempts to avoid this snow plow effect on raised collision surfaces 19 by slanting the forward face of surfaces 19 at an acute angle, thereby causing particles to either bounce upward from the tool or be swept by friction upward along the face of the tool until carried over its top and into the lee of the tool. However, a problem with the tool shown in Figure 2 and with other tools in the prior art is that an enlarged collision surface tends to create vortices in the wake of the tool as well as to decrease the overall density of particles in the zone 22 behind the tool. The degree of such density variations depends primarily upon the speed of the tool through the particle mixture as well as the height, width, and depth of the collision surface 19.

Please substitute the following amended paragraph for the pending paragraph beginning on page 11, line 21:

Other aspects of the present invention will become apparent as the following description proceeds and upon reference to the drawings, in which:

Figure 1 is a schematic elevational view of a blending machine of the prior art;

Figure 2 is a perspective view of a blending tool of the prior art;

Figure 3 is a perspective view of an embodiment of the blending tool of the present invention;

Figure 4 is a perspective view of an embodiment of the blending tool of the present invention having an adjustable articulator hinge;

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Figure 5 is a perspective view of an embodiment of an articulator hinge of the present invention; and

Figure 6 is a chart showing specific power levels of the blending motor when using different configurations of the blending tool of the present invention and when using a conventional tool of the prior art.

Please substitute the following amended paragraph for the pending paragraph beginning on page 14, line 26:

Yet another aspect of the present invention is a blending tool that allows reconfiguration of the effective collision surface size and profile without removal of the entire tool. Referring to Figure 4, blending tool 30 comprises a center shank 31 and collision plates 35A and 35B. Center shank 31 contains locking fixture 32 at its middle for mounting onto rotating drive shaft 14 (not shown) of the blending machine 2 (not shown). Each end of center shank 31 contains a connecting mechanism 33 for rigidly mounting and holding an arm shown, respectively, as 34A and 34B. Connecting mechanism 33 shown in Figure 4 comprises a simple nut and bolt fastener which compresses together and rigidly positions collision plates 35A and 35B on arms 34A and 34B and on center shank 31, respectively. As will be described more fully below, different arrangements for positioning arms 34A and 34B are possible. Additionally, different arrangements for an adjustable collision surface are possible. For instance, each end region of the center shank 31 could comprise a leading edge flap connected to the center shank by one, two, or more connector mechanisms such that the angle of the flaps could be tilted down or raised much like the leading edge slat of some high speed jets and airplanes

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Please substitute the following amended paragraph for the pending paragraph beginning on page 16, line 14:

An example of an alternate embodiment of an articulator hinge 33 is shown in Figure 5. The embodiment shown in Figure 5 allows articulation of arm 34 into pre-set positions determined by alignment of bolt 45 (which runs through a hole in arm 34) with bored holes 41, 42, 43, and 44 formed in central hub 35. The process of articulating the hinge to these pre-set angles is accomplished by the relatively easy loosening and withdrawal bolt 45. As bolt 45 becomes withdrawn, arm 34 can be repositioned such that bolt 45 aligns with and can be inserted into one of alternate holes 41, 42, 43, and 44. Lastly, arm 34 is again secured in place by refastening bolt 45.

Please substitute the following amended paragraph for the pending paragraph beginning on page 18, line 3:

The flexibility of the blending tool of the present invention is demonstrated in Figure 6, which shows the various levels of intensity that were obtained with the tool of the present invention as it is reconfigured into different positions. Each of the 4 curves shown on Figure 6 show data created during blending of Xerox toner for a Xerox Docucenter 265 multifunctional printer in a Henschel 75-liter blender. Four blends were made, all using the same tool speed. The vertical axis measures the specific power of the blending motor (W/lb) which, as discussed above, is considered a good measure of the blend intensity when using an efficient blending tool. The horizontal axis measures time of the blend. The curve marked with round data points shows the results with arm 34 set at 45 degrees, which angle offered the greatest tool profile for this experiment. As can be seen in Figure 6, this curve with round data points, reflecting the largest profile, shows the greatest blend intensity. The curve marked with diamond data points shows the results with arm 34 set at 22.5 degrees, while the curve marked with triangular data points shows the results with arm 34 set at 0 degrees. These angles cause decreasing tool profiles and, as expected, decreasing blend intensity that